

Appln. No. 10/048,013  
Amdt. dated August 21, 2003  
Reply to Office action of June 3, 2003

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1 (Currently amended). ~~Process for improving the fertilization activity of spermatozoa, in particular~~ An in vitro process for increasing spermatozoa motility, comprising:

treating ~~[[the]]~~ seminal liquid comprising spermatozoa with an amount of a phosphatidylinositol-3 kinase (PI3K) inhibitor sufficient to increase spermatozoa motility; and  
separating the spermatozoa by spermatozoa separation methods used in assisted reproduction techniques (ART).

Claims 2 and 3 (Cancelled)

4 (Currently amended). Process according to claim ~~[[3]]~~ 1, wherein separating the spermatozoa is performed by a method selected from the group consisting of the wash and spin method, the sedimentation method, the direct swim-up method, the pellet and swim-up method, and the buoyant density gradient method.

5 (Original). Process according to claim 4, wherein separating the spermatozoa is performed by the direct swim-up method.

6(Currently amended). Process according to claim 1, wherein the process is performed on ~~mammal~~ mammalian spermatozoa.

7(Previously presented). Process according to claim 1, wherein the PI3K inhibitor is selected from the group consisting of 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one (LY294002), wortmannin, quercetin, and derivatives and analogues thereof.

8(Original). Process according to claim 7, wherein the PI3K inhibitor is LY294002.

9(Previously presented). Process according to claim 1, wherein spermatozoa are treated with an amount of PI3K inhibitor in the range of about 0.01 to 1000  $\mu$ M, about 5 to 500  $\mu$ M, or about 10 to 100  $\mu$ M.

10(Previously presented). Process according to claim 1, wherein treating the spermatozoa with the PI3K inhibitor comprises incubating the spermatozoa for a period of time in the range of about 30 minutes to 10 hours or about 1 to 8 hours or about 2 to 6 hours at a temperature of around 37°C.

Claim 11 (Cancelled)

12(Previously presented). Spermatozoa obtainable by the process according to claim 1.

Claims 13-18 (Cancelled)

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19(Original). Method of ART therapy, comprising treating spermatozoa with a phosphatidylinositol-3 kinase (PI3K) inhibitor.

20(Currently amended). Method according to claim 19, wherein ~~[[the]]~~ ART ~~[[are]]~~ therapy is selected from the group consisting of in vitro fertilization (IVF) gamete intrafallopian transfer (GIFT), [[or]] and intrauterine insemination (IUI).

21(Original). A medium for storage and/or transportation of spermatozoa comprising a phosphatidylinositol-3 kinase (PI3K) inhibitor.

22(Currently amended). Medium according to claim 21 for the storage and/or transportation of ~~mammal~~ mammalian spermatozoa, ~~in particular human spermatozoa.~~

23(Original). Method according to claims 21 or 22, wherein the PI3K inhibitor is selected from the group consisting of 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one (LY294002), wortmannin, quercetin, and derivatives and analogues thereof.

24(Original). Medium according to claim 23, wherein the PI3K inhibitor is LY294002.

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25(Previously presented). Medium according to claim 21, comprising an amount of PI3K inhibitor in the range of about 0.01 to 1000  $\mu$ M, about 5 to 500  $\mu$ M, or about 10 to 100  $\mu$ M.

26(Currently amended). The method according to claim 19, ~~24~~<sup>24a</sup> wherein the PI3K inhibitor is selected from the group consisting of 2-(4-morpholinyl)-8-phenyl-4H-1-benzopyran-4-one (LY294002), wortmannin, quercetin, and derivatives and analogues thereof.

27(Previously presented). The method according to claim 26, wherein the PI3K inhibitor is LY294002.

28(Previously presented). The process according to claim 6, wherein the mammal spermatozoa is human spermatozoa.

29(New). The medium according to claim 22, wherein the mammalian spermatozoa is human spermatozoa.